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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,310	06/01/2001	Johannes Jacobus Van Vaals	PHN 17,651	4882

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P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER

FETZNER, TIFFANY A

ART UNIT PAPER NUMBER

2859

DATE MAILED: 10/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/857,310

Applicant(s)

VAN VAALS, JOHANNES
JACOBUS

Examiner

Tiffany A Feltzner

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 08/06/2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,9-12 and 18-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,9-12 and 18-28 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED Final ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 3-5, and 9-12 have been considered but are moot in view of the new ground(s) of rejection, necessitated by applicant's August 13th 2003 amendment and response.
2. The rejections made using the **Darrow et al.**, US patent 5,730,129; **Schneider et al.**, US patent 5,711,300; and the **Rasche et al.**, US patent 5,938,599 references are also moot in view of the new ground(s) of rejection, necessitated by applicant's August 13th 2003 amendment and response.

Claim Objections

3. **Claim 18** is objected to because of the following informalities: in line 14 of claim 18 a "chemical shaft" is referred to, but applicant's claim is actually referring to "chemical shift", therefore applicant needs to **delete** the word "shaft" and **insert** the word shift". Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. **Claim 19** recites the limitation "an indication of the **position of the measuring site** is reproduced" in lines 2 through 3. There is insufficient antecedent basis for a "measuring site" this claim because there is no defined measuring site in **claim 18**, and based on applicant's amendment response of August 13th 2003, it appears that applicant's "measuring site" is a typographical error for "microcoil". The examiner has

applied art below based on the assumption that the term "measuring site", is a typographical error for the term "microcoil".

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claims 1, 9, 12, and 24-26** are rejected under **35 U.S.C. 102(e)** as being anticipated by **Kucharczyk et al.**, US patent 6,061,587 issued May 9th 2000, filed May 15th 1997.

8. With respect to **Amended method claim 1**, and **corresponding amended magnetic resonance computer program implementation claim 12**, **Kucharczyk et al.**, teaches, and shows "A method of forming a magnetic resonance image of an object to be examined, comprising the steps of: acquiring magnetic resonance signals" [See Figure 7, col. 10 lines 33-44; col. 10 line 61 through col. 11 line 54; col. 17 line 16 through col. 21 line 32] "inserting a microcoil into the object being examined", [See figures 1, 2, 4, 6a, 6b, 6c, 7, 8, 9, 10, and 11] "determining the position of the microcoil", [See col. 17 line 16 through col. 21 line 32; Figure 7; col. 9 lines 1-15] "determining a geometrical relationship between the position of the microcoil and the object being examined" [See col. 17 line 16 through col. 21 line 32; Figure 7; col. 9 lines 1-15],

“reconstructing the magnetic resonance image from the acquired magnetic resonance signals and on the basis of the determined position of the microcoil,” [See col. 17 line 16 through col. 21 line 32; Figure 7; col. 9 lines 1-15; Figures 1-6c and figures 8-11]

Kucharczyk et al., also shows the step of “reproducing a detail of the object being examined and an indication of the position of the microcoil together in the magnetic resonance image” [See Figure 7, col. 9 lines 1-15; col. 17 line 16 through col. 21 line 32; Figures 6a-6c and figures 8-11] “and deriving a correct position of the detail of the object being examined in the magnetic resonance image relative to the indication of the position of the microcoil on the basis of the position of the indication of the position of the microcoil and the determined geometrical relationship between the position of the microcoil and the object being examined.” [See col. 17 line 16 through col. 21 line 32; Figure 7; col. 9 lines 1-15; col. 10 line 33 through col. 11 line 58; col. 8 lines 47-51; col. 8 lines 57-60; Figures 1-6c and figures 8-11].

9. With respect to **amended claim 9**, “positioning the microcoil at a measuring site such that position magnetic resonance signals are produced by the microcoil, and deriving the position of the microcoil from the position magnetic resonance signals.” [See col. 17 line 16 through col. 21 line 32; Figure 7; col. 9 lines 1-15; col. 10 line 33 through col. 11 line 58; col. 8 lines 47-51; col. 8 lines 57-60; Figures 4, 5, 6a-6c and figures 8-11] The same reasons for rejection, that apply to **claims 1, 12** also apply to **claim 9**.

10. With respect to **New claim 24**, **Kucharczyk et al.**, teaches and shows that “the microcoil is mounted on an interventional instrument”. [See Figures 4, 5, 6a, 6b, 6c; col.

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17 line 16 through col. 21 line 32]. The same reasons for rejection, that apply to **claims 1, 12**, also apply to **claim 24**.

11. With respect to **New claim 25, Kucharczyk et al.**, teaches the step of "mounting the microcoil on a catheter". [See Figures 4, 5, 6a, 6b, 6c; col. 17 line 61 through col. 18 line 6]. The same reasons for rejection, that apply to **claims 1, 12**, also apply to **claim 25**.

12. With respect to **New claim 26, Kucharczyk et al.**, teaches that "the geometrical relationship between the position of the microcoil and the object being examined is determined such that upon movement of the object being examined, an adjusted position of the microcoil is determinable" [See col. 17 line 16 through col. 21 line 32; col. 9 lines 1-15 col. 10 line 61 through col. 11 line 54]. The same reasons for rejection, that apply to **claims 1, 12**, also apply to **claim 26**.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. **Claims 3-5 and 18-23** are rejected under **35 U.S.C. 103(a)** as being unpatentable over **Kucharczyk et al.**, US patent 6,061,587 issued May 9th 2000, filed May 15th 1997.

16. With respect to **claim 3, Kucharczyk et al.**, lacks directly teaching “acquiring a set of measuring magnetic resonance signals at a reference temperature and acquiring a set of measuring magnetic resonance signals after the temperature has been changed, notably increased, at the area of the microcoil” however, it would have been obvious to one of ordinary skill in the art at the time that the invention was made that these steps are suggested from the **Kucharczyk et al.**, reference because **Kucharczyk et al.**, teaches that thermal elements 30. [See Figure 5] are useful during MR medical procedures, and that the thermal elements and other sensing detecting elements are positioned within the tissues and configured as desired or needed for the particular procedure intended for the device. [See col. 19 lines 5-17] Additionally, since a preliminary or initial MR scan is performed from which signals are acquired, [See the first flow chart step of figure 7] the teaching that thermal elements are part of the device, [See col. 19 lines 5-17] suggests that the acquired MR signals, also necessarily have a thermal element reference temperature. The limitation of “acquiring a set of measuring magnetic resonance signals after the temperature has been changed, notably increased, at the area of the microcoil”, is suggested from steps g and h of col. 11 lines 52-54 in combination with the teachings of col. 10 line 33 through col. 11 line 58; Figure 7; and col. 17 line 16 through col. 21 line 32] The examiner notes that the reference

reads on any change in temperature be it an increase or a decrease because the reference teaches any temperature change.

17. **Kucharczyk et al.**, also teaches "deriving reference magnetic resonance image from the reference magnetic resonance signals, deriving a measuring magnetic resonance image from the measuring magnetic resonance signals, and making the measuring magnetic resonance image and the reference magnetic resonance image to register on the basis of the determined position of the microcoil." [See col. 17 line 16 through col. 21 line 32; Figure 7; col. 9 lines 1-15; col. 10 line 33 through col. 11 line 58; col. 22 lines 28-33; col. 8 lines 47-51; col. 8 lines 57-60; Figures 1-6c and figures 8-11] The same reasons for rejection, that apply to **claim 1** also apply to **claim 3**.

18. With respect to **amended claim 4**, **Kucharczyk et al.**, also teaches that "on the basis of the determined position of the microcoil" (i.e. the device which in **Kucharczyk et al.**, includes the microcoil components) "acquiring the reference magnetic resonance signals and the measuring magnetic resonance signals from essentially the same region." [See col. 17 line 16 through col. 21 line 32; Figure 7; col. 9 lines 1-15; col. 10 line 33 through col. 11 line 58; col. 8 lines 47-51; col. 8 lines 57-60; Figures 5, 6a-6c and figures 8-11 which show the same general target area as the procedure is carried out over time.] The same reasons for rejection, that apply to **claims 1, 3** and the reasons for obviousness that apply to **claim 3**, also apply to **claim 4**.

19. With respect to **amended claim 5**, **Kucharczyk et al.**, shows the step of reproducing a detail and an indication of the position of the microcoil in the reference magnetic resonance image, reproducing the same detail and the indication of the

position of the microcoil in the measuring magnetic resonance image” [See Figures 7-11 where the drug and tip of the microcoil device indications of the same detail in the multiple figures], “and wherein a shift of the detail is derived from respective positions of the detail relative to the indication of the position or the microcoil in the reference magnetic resonance image and the measuring magnetic resonance image”, [See col. 17 line 16 through col. 21 line 32; Figure 7; col. 9 lines 1-15; col. 10 line 33 through col. 11 line 58; col. 8 lines 47-51; col. 8 lines 57-60; Figures 5, 6a-6c and figures 8-11] “correcting the position of the detail in the measuring magnetic resonance image is corrected on the basis of the derived shift of the detail.” [See col. 17 line 16 through col. 21 line 32; Figure 7; col. 9 lines 1-15; col. 10 line 33 through col. 11 line 58; col. 8 lines 47-51; col. 8 lines 57-60; Figures 5, 6a-6c and figures 8-11 The same reasons for rejection, obviousness, and motivation to combine, that apply to **claims 1, 3** also apply to **claim 5**.

20. With respect to **New claim 18, Kucharczyk et al.**, lacks directly teaching “acquiring reference magnetic resonance signals at a reference temperature, increasing the temperature in an area proximate the microcoil, then acquiring measuring magnetic resonance signals after the temperature in the area proximate the microcoil has been increased”, as mentioned in the rejection of **claim 3**, however, this limitation is also met for the same reasons as those provided in the rejection of claim 3, which need not be reiterated again.

21. Additionally, **Kucharczyk et al.**, does “reconstruct a reference magnetic resonance image” (i.e. an initial magnetic resonance image) from the initially acquired

signals, (i.e. applicant's "reference magnetic resonance signals") [See Figure 7]

Kucharczyk et al., also reconstructs "a measuring magnetic resonance image from the measuring magnetic resonance signals" [See figure 7], the steps of "determining a temperature dependent chemical **shift** upon comparison of the measuring magnetic resonance signals to the reference magnetic resonance signals, and , determining a location variation in temperature on the basis of the temperature dependent chemical shift", are directly taught and suggested by the teachings of col. 10 line 61 through col. 11 line 54, col. 19 lines 3-15; figures 5, 7 where temperature changes, chemical shift and combinations of temperature and chemical shift changes are taught. [See col. 11 lines 51-54 and figure 7 especially]. The same reasons for rejection, and obviousness, that apply to **claims 1, 3, 5, 12**, also apply to **claim 18** and need not be reiterated.

22. With respect to **New claim 19**, **Kucharczyk et al.**, "teaches and suggests that "an indication of the position of the **microcoil** is reproduced in the reference magnetic resonance image and in the measuring magnetic resonance image." [See Figures 7-11 where the drug and tip of the microcoil device provide indications of the same detail in the multiple figures of **Kucharczyk et al.**, and col. 17 line 16 through col. 21 line 32; Figure 7; col. 9 lines 1-15; col. 10 line 33 through col. 11 line 58; col. 8 lines 47-51; col. 8 lines 57-60; Figures 5, 6a-6c and figures 8-11]. The same reasons for rejection, obviousness, and motivation to combine, that apply to **claims 1, 3, 5, 12, 18** also apply to **claim 19** and need not be reiterated.

23. With respect to **New claim 20**, **Kucharczyk et al.**, "teaches and shows the step of "using an energy-dissipating element" (i.e. thermal element 30 shown in Figure 5) "in

conjunction with the microcoil to provide for the increase in temperature in the area proximate the microcoil" [See Figure 7 in combination with the teachings of col. 19 lines 3-15; col. 10 line 61 through col. 11 line 54; and Figure 5]. The same reasons for rejection, obviousness, and motivation to combine, that apply to **claims 1, 3, 5, 12, 18** also apply to **claim 20** and need not be reiterated.

24. With respect to **New claim 21, Kucharczyk et al.**, "teaches and shows the step of "arranging an energy-dissipating element" (i.e. thermal element 30 shown in Figure 5) "near the microcoil to provide for the increase in temperature in the area proximate the microcoil." [See Figure 7 in combination with the teachings of col. 19 lines 3-15; col. 10 line 61 through col. 11 line 54; and Figure 5]. The same reasons for rejection, obviousness, and motivation to combine, that apply to **claims 1, 3, 5, 12, 18** also apply to **claim 21** and need not be reiterated.

25. With respect to **New claim 22, Kucharczyk et al.**, shows from the figures the steps of "inserting an additional microcoil into the object being examined", [See Figures 4, microcoils 9, 9a, 10, 10a; Figures 8 through 11] "and measuring the position and direction, of a line through the microcoils." [See Figures 4, the line through, microcoils 9, 9a, 10, 10a; Figures 6a, 6b, 6c, and The detectable line generated by the microcoils for the position of the device in Figures 8-11. The same reasons for rejection, obviousness, and motivation to combine, that apply to **claims 1, 3, 5, 12, 18** also apply to **claim 22** and need not be reiterated.

26. With respect to **New claim 23, Kucharczyk et al.**, shows from the figures the steps of "inserting two additional microcoils into the object being examined such that all

three microcoils are not on the same line" [See figures 46a, 6b, 6]. Additionally, **Kucharczyk et al.**, teaches and shows from the figures the step of, "measuring the position and, orientation of a plane through the microcoils." [See col. 17 line 16 through col. 18 line 14; Figures 8-11; col. 8 lines 47-51; col. 8 lines 57-60; col. 1 lines 23-29; col. 6 line 57 through col. 7 line 2] The same reasons for rejection, obviousness, and motivation to combine, that apply to **claims 1, 3, 5, 12, 18** also apply to **claim 23** and need not be reiterated.

27. **Claims 10, 11, 27 and 28** are rejected under **35 U.S.C. 103(a)** as being unpatentable over **Kucharczyk et al.**, US patent 6,061,587 issued May 9th 2000, filed May 15th 1997; as applied to **claims 1, 9** above in further view of **Kucharczyk et al.**, US patent 6,298,259 B1 issued on October 2nd 2001 and filed October 16th 1998.

28. With respect to **amended claim 10**, **Kucharczyk et al.**, teaches and shows "A magnetic resonance imaging system for forming a magnetic resonance image of an object to be examined comprising: a microcoil insertable into the object being examined, [See Figures 1 through 11; col. 17 line 16 through col. 21 line 32] "a coil system for acquiring magnetic resonance signals and for determining the position of the microcoil in the object being examined, [See Figures 1-11; col. 8 lines 47-60; col. 17 line 16 through col. 21 line 32]

29. **Kucharczyk et al.**, lacks directly teaching "a unit for the determination of, geometrical relationship between the position of the microcoil and the object being examined, and a reconstruction unit for the reconstruction of the magnetic resonance image from the acquired magnetic resonance imaging signals and the determined

position of the microcoil, the reconstruction unit being arranged to reproduce a detail of the object being examined and an indication of the position the microcoil together in the magnetic resonance image". However, **Kucharczyk et al.**, teaches reconstructing MR images by two-dimensional Fourier transformation. [See col. 22 lines 64-68]

Additionally, the figures of **Kucharczyk et al.**, show the MR device with the MR microcoils in the obtained MR images, and **Kucharczyk et al.**, teaches that the distal tip of the device is imaged and superimposed upon diagnostic images of intracranial anatomy. [See col. 9 lines 1-15] with the device able to send and receive signals at any geometrical location. [See col. 18 lines 2-14] Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made that the limitation of "a unit for the determination of, geometrical relationship between the position of the microcoil and the object being examined, and a reconstruction unit for the reconstruction of the magnetic resonance image from the acquired magnetic resonance imaging signals and the determined position of the microcoil, the reconstruction unit being arranged to reproduce a detail of the object being examined and an indication of the position the microcoil together in the magnetic resonance image", is found within the scope of the **Kucharczyk et al.**, reference.

30. Additionally, the limitation that "a correct position of the detail of the object being examined in the magnetic resonance image relative to the indication of the position of the microcoil being derived on the basis of the position of the indication of the position of the microcoil and the determined geometrical relationship between the position of the microcoil and the object being examined", is directly suggested in the **Kucharczyk et**

al., reference from figures 7-11; col. 9 lines 1-15; col. 18 lines 2-53; and especially col. 8 lines 33-51 where the MR microcoils, and distal tip are taught to be viewable in the MR images, and the visibility of the device and anatomy is taught to be adjustable as necessary, therefore both the resolution of the device and the details of the anatomy being imaged are capable of being corrected and enhanced.]

31. Alternatively, the **Kucharczyk et al.**, reference can be modified by combining it with the teachings of the **Kucharczyk et al.**, 6,298,259 B1 reference issued on October 2nd 2001 and filed October 16th 1998 where interactive target definition, localization, trajectory planning and verification of the final position of a probe within the target, as well as on-line tracking and monitoring are performed, [See col. 12 lines 10-17] because the **Kucharczyk et al.**, 6,298,259 B1 reference specifically teaches how devices, such as the medical device of **Kucharczyk et al.**, 6,061,587 are tracked and located in MR images in real time. [See col. 10 lines 34-38; col. 10 lines 47-51] the examiner notes that this reference also teaches and suggests a super host computer specifically as a reconstruction unit, and direct compatibility with the type of device taught in the **Kucharczyk et al.**, 6,061,587 reference. [See **Kucharczyk et al.**, '259 col. 13 line 41 through col. 15 line 11; col. 15 lines 28-38; col. 10 lines 34-38; col. 10 lines 47-51 and col. 17 lines 16-49]. The same reasons for rejection, that apply to **claim 1** also apply to **claim 10**.

32. With respect to **amended claim 11**, **Kucharczyk et al.**, teaches and shows "the microcoil is arranged to produce position magnetic resonance signals", [See **Kucharczyk et al.**, col. 17 line 16 through col. 21 line 32; Figure 7] **Kucharczyk et al.**,

also teaches deriving “the magnetic resonance image from the magnetic resonance signals and on the basis of the position magnetic resonance signals.” [See col. 10 line 61 through col. 11 line 54].

33. **Kucharczyk et al.**, lacks directly teaching that a reconstruction unit is used to “derive the magnetic resonance image from the magnetic resonance signals and on the basis of the position magnetic resonance signals.” However, **Kucharczyk et al.**, does suggest a reconstruction means since image reconstruction is performed in **Kucharczyk et al.**, [See col. 22 lines 64-68] and **Kucharczyk et al.**, ‘259 teaches a computer as the reconstruction means for this purpose in col. 12 line 44 through col. 15 line 38. The same reasons for rejection, obviousness, and motivation to combine, that apply to **claims 1, 10** also apply to **claim 11** and need not be reiterated.

34. With respect to **New claim 27**, **Kucharczyk et al.**, teaches and shows that “the microcoil is mounted on an interventional instrument”. [See Figures 4, 5, 6a, 6b, 6c; col. 17 line 16 through col. 21 line 32]. The same reasons for rejection, obviousness, and motivation to combine, that apply to **claims 1, 10** also apply to **claim 27** and need not be reiterated.

35. With respect to **New claim 28**, **Kucharczyk et al.**, teaches and shows that “the interventional instrument, includes a temperature sensor for measuring local temperature” [See thermal elements 30 in Figure 5] “and the microcoil produces position magnetic resonance signals”, [See **Kucharczyk et al.**, col. 17 line 16 through col. 21 line 32; Figure 7]. **Kucharczyk et al.**, also teaches and suggests “a temperature distribution in form of at least one thermal image on the basis of the temperature

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measured by the temperature sensor, the position magnetic resonance signals and the acquired magnetic resonance signals." [See col. 19 lines 3-17; col. 10 line 61 through col. 11 line 54, where changes in tissue temperature are monitored and mapped using thermal elements 30].

36. **Kucharczyk et al.**, lacks directly teaching that a reconstruction unit is used to "reconstruct a temperature distribution" However, **Kucharczyk et al.**, does suggest a reconstruction means since image reconstruction is performed in **Kucharczyk et al.**, [See col. 22 lines 64-68] and **Kucharczyk et al.**, '259 teaches a computer as the reconstruction means for this purpose in col. 12 line 44 through col. 15 line 38]. The same reasons for rejection, obviousness, and motivation to combine, that apply to **claims 1, 3, 10, 27** also apply to **claim 28** and need not be reiterated.

37. With respect to **claim 2**, this claim is **Cancelled** as per the August 13th 2003 amendment response.

38. With respect to **claims 6-8**, these claims are **Cancelled** as per the August 13th 2003 amendment response.

39. With respect to **claims 13-17**, these claims are **Cancelled** as per the August 13th 2003 amendment response.

40. The **prior art made of record** and not relied upon is considered pertinent to applicant's disclosure.

A) . **Kucharczyk et al.**, US patent 6,026,316 issued February 15th 2000, filed May 15th 1997 which is similar to the 6,061,587 patent applied above and the examiner notes

that each of the **Kucharczyk et al.**, 6,061,587 and **Kucharczyk et al.**, 6,026,316 patent are subject to a terminal disclaimer.

B) Gillies et al., US patent 6,272,370 B1 issued August 7th 2001, filed August 7th 1998 which teaches and shows an MR visible medical device that uses microcoils, to image a patients internal anatomy.

C) Truwit et al., US patent 5,964,705 issued October 12th 1999 which shows an MR compatible medical device that uses microcoils.

D) Darrow et al., US patent 5,730,129 issued March 24th 1998.

E) Schneider et al., US patent 5,711,300 issued January 27th 1998.

F) Rasche et al., US patent 5,938,599 issued August 17th 1999.

41. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

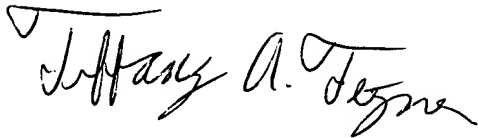
42. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Conclusion

43. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tiffany Fetzner whose telephone number is (703) 305-0430. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm., and on alternate Friday's from 7:00am to 3:30pm.

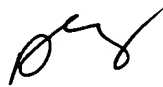
44. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached on (703) 308-3875. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3432.

45. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0956.



TAF

October 19, 2003



Diego Gutierrez

Supervisory Patent Examiner

Technology Center 2800